



SEQUENCE LISTING

<110> Aphton Corporation

<120> Chimeric Peptide Immunogens

<130> 1102865-0047

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<141> 2001-05-04

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<151> 2000-05-05

<160> 20

<170> PatentIn version 3.0

<210> 1

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<212> PRT

<213> Homo sapiens

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<221> MOD_RES

<222> (1)..(1)

<223> Pyroglutamic acid or 5-oxoproline

<220>

<221> MOD_RES

<222> (10)..(10)

<223> Amidated-glycine or glycinamide

<400> 1

Xaa His Trp Ser Tyr Gly Leu Arg Pro Xaa
1 5 10

<210> 2

<211> 16

<212> PRT

<213> *Tetanus bacillus*

<220>

<221> PEPTIDE

<222> (1)..(16)

<223> Amino acid sequence 829-844 of the *Tetanus*
Toxoid Precursor (*Tentoxylisin*)

<400> 2

Met Gln Tyr Ile Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu Leu
1 5 10 15

<210> 3

<211> 20

<212> PRT

<213> Plasmodium falciparum

<220>

<221> PEPTIDE

<222> (1)..(20)

<223> Amino acid sequence 378-398 of the Plamodium
falciparum circumsporozoite (CSP) protein

<400> 3

Asp Glu Lys Lys Ile Ala Lys Met Glu Lys Ala Ser Ser Val Phe Asn
1 5 10 15

Val Val Asn Ser

20

<210> 4

<211> 21

<212> PRT

<213> Tetanus bacillus

<220>

<221> PEPTIDE

<222> (1)..(21)

<223> Amino acid sequence 947-967 of Tetanus
Toxoid Precursor (Tentoxylysin)

<400> 4

Phe Asn Asn Phe Thr Val Ser Phe Trp Leu Arg Val Pro Lys Val Ser
1 5 10 15

Ala Ser His Leu Glu

20

<210> 5

<211> 4

<212> PRT

<213> Artificial

<220>

<223> Synthetic peptide

<400> 5

Gly Pro Ser Leu
1

<210> 6
<211> 6
<212> PRT
<213> Artificial

<220>
<223> Synthetic peptide

<400> 6

Ser Ser Gly Pro Ser Leu
1 5

<210>	7
<211>	8
<212>	PRT
<213>	Artificial

<220>
<223> Synthetic peptide

<400> 7

Ser Ser Gly Pro Ser Leu Lys Leu
1 5

<210> 8
<211> 16
<212> PRT
<213> Measles virus

<220>
<221> PEPTIDE
<222> (1)..(16)
<223> Amino acid sequence 288-302 of the measles
virus fusion protein, F

<400> 8

Leu Ser Glu Ile Lys Gly Val Ile Val His Arg Leu Glu Gly Val Glu
1 5 10 15

<210> 9
<211> 31
<212> PRT

<213> Artificial

<220>

<223> Chimeric peptide made up of amino acid sequence 288-302 of the Measels virus fusion protein, F linked by a spacer peptide to amino acid sequence 2-10 of the GnRH hormone

<220>

<221> MOD_RES

<222> (1)..(1)

<223> Amidated Lysine

<220>

<221> PEPTIDE

<222> (1)..(15)

<223> Peptide corresponds to the amino acid sequences 288-302 of the measles virus fusion protein, F

<220>

<221> PEPTIDE

<222> (19)..(22)

<223> Spacer peptide

<220>

<221> PEPTIDE

<222> (23)..(31)

<223> Peptide corresponds to amino acid sequences 2-10 of the human GnRH hormone

<220>

<221> MOD_RES

<222> (31)..(31)

<223> Amidated glycine or glycinamide

<400> 9

Lys Leu Leu Ser Glu Ile Lys Gly Val Ile Val His Arg Leu Glu Gly
1 5 10 15

Val Glu Gly Pro Ser Leu His Trp Ser Tyr Gly Leu Arg Pro Xaa
20 25 30

<210> 10

<211> 34

<212> PRT

<213> Artificial

<220>
<223> Chimeric peptide consisting of amino acid sequence 947-967 of the Tetanus toxoid precursor (Tentoxylisin) linked by a spacer to amino acid sequence 2-10 of the GnRH hormone

<220>
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<222> (1)..(1)
<223> Amidated phenylalanine

<220>
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<222> (1)..(21)
<223> Amino acids 947-967 of the Tetanus Toxoid Precursor (Tentoxylisin)

<220>
<221> PEPTIDE
<222> (22)..(25)
<223> Spacer peptide

<220>
<221> PEPTIDE
<222> (26)..(34)
<223> Amino acids 2-10 of the human GnRH hormone

<220>
<221> MOD_RES
<222> (34)..(34)
<223> Amidated glycine or glycinamide

<400> 10

Phe Asn Asn Phe Thr Val Ser Phe Trp Leu Arg Val Pro Lys Val Ser
1 5 10 15

Ala Ser His Leu Glu Gly Pro Ser Leu His Trp Ser Tyr Gly Leu Arg
20 25 30

Pro Xaa

<210> 11
<211> 28
<212> PRT
<213> Artificial

<220>
<223> Chimeric peptide consisting of amino acid sequence 830-844 of the Tetanus toxoid precursor (Tentoxylisin) linked by a spacer to amino acid sequence 2-10 of the GnRH hormone

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<222> (1)..(1)
<223> Amidated-glutamine

<220>
<221> MOD_RES
<222> (28)..(28)
<223> Amidated-glycine or glycinamide

<220>
<221> PEPTIDE
<222> (1)..(15)
<223> Amino acid sequence 830-844 of the Tetanus Toxoid Precursor (Tentoxylisin)

<220>
<221> PEPTIDE
<222> (16)..(19)
<223> Spacer peptide

<220>
<221> PEPTIDE
<222> (20)..(28)
<223> Amino acid sequence 2-10 of the human GnRH hormone

<400> 11

Gln Tyr Ile Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu Leu Gly
1 5 10 15

Pro Ser Leu His Trp Ser Tyr Gly Leu Arg Pro Xaa
20 25

<210> 12
<211> 33
<212> PRT
<213> Artificial

<220>
<223> Chimeric peptide consisting of amino acid sequence 378-398 of the Plasmodium falciparum CSP protein linked by a spacer to amino

acid sequence 2-10 of the GnRH hormone

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Amidated aspartic acid

<220>
<221> MOD_RES
<222> (33)..(33)
<223> Amidated glycine or glycinamide

<220>
<221> PEPTIDE
<222> (1)..(20)
<223> Amino acid sequence 378-398 of the Malaria
(Plasmodium falciparum) circumsporozoite
(CSP) protein

<220>
<221> PEPTIDE
<222> (21)..(24)
<223> Spacer peptide

<220>
<221> PEPTIDE
<222> (25)..(33)
<223> Amino acid sequence 2-10 of the human GnRH hormone

<400> 12

Asp Glu Lys Lys Ile Ala Lys Met Glu Lys Ala Ser Ser Val Phe Asn
1 5 10 15

Val Val Asn Ser Gly Pro Ser Leu His Trp Ser Tyr Gly Leu Arg Pro
20 25 30

Xaa

<210> 13
<211> 34
<212> PRT
<213> Artificial

<220>
<223> Chimeric peptide consisting of amino acid sequence 1-10 of the

GnRH hormone linked by a spacer to amino acid sequence 288-302 of the Measles virus fusion protein,

<220>
<221> PEPTIDE
<222> (1)..(10)
<223> Amino acid sequence 1-10 of the human GnRH hormone

<220>
<221> PEPTIDE
<222> (11)..(18)
<223> Spacer peptide

<220>
<221> PEPTIDE
<222> (19)..(34)
<223> Amino acid sequence 288-302 of the Measles virus fusion protein, F

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Pyroglutamic acid or 5-oxoproline

<400> 13

Xaa His Trp Ser Tyr Gly Leu Arg Pro Gly Ser Ser Gly Pro Ser Leu
1 5 10 15

Lys Leu Leu Ser Glu Ile Lys Gly Val Ile Val His Arg Leu Glu Gly
20 25 30

Val Glu

<210> 14
<211> 37
<212> PRT
<213> Artificial

<220>
<223> Chimeric peptide consisting of amino acid sequence 1-10 of the GnRH hormone linked by a spacer to amino acid sequence 947-967 of the Tetanus toxoid precursor (Tentoxylisin)

<220>
<221> MOD_RES
<222> (1)..(1)

<223> Pyroglutamic acid or 5-oxoproline

<220>

<221> PEPTIDE

<222> (1)..(10)

<223> Amino acid sequence 1-10 of the human GnRH hormone

<220>

<221> PEPTIDE

<222> (11)..(16)

<223> Spacer peptide

<220>

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<222> (17)..(37)

<223> Amino acid sequence 947-967 of the Tetanus toxoid precursor
(Tentoxylisin)

<400> 14

Xaa His Trp Ser Tyr Gly Leu Arg Pro Gly Ser Ser Gly Pro Ser Leu
1 5 10 15

Phe Asn Asn Phe Thr Val Ser Phe Trp Leu Arg Val Pro Lys Val Ser
20 25 30

Ala Ser His Leu Glu
35

<210> 15

<211> 31

<212> PRT

<213> Artificial

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<223> Chimeric peptide consisting of amino acid sequence 1-10 of the
GnRH hormone linked by a spacer to amino sequence 830-844 of the
Tetanus toxoid precursor (Tentoxylisin)

<220>

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<222> (1)..(1)

<223> Pyroglutamic acid or 5-oxoproline

<220>

<221> PEPTIDE

<222> (1)..(10)

<223> Amino acid sequence 1-10 of the human GnRH hormone

<220>

<221> PEPTIDE

<222> (11)..(16)

<223> Spacer peptide

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<221> PEPTIDE

<222> (17)..(31)

<223> Amino acid sequence 830-844 of the Tetanus toxoid precursor
(Tentoxylisin)

<400> 15

Xaa His Trp Ser Tyr Gly Leu Arg Pro Gly Ser Ser Gly Pro Ser Leu
1 5 10 15

Gln Tyr Ile Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu Leu
20 25 30

<210> 16

<211> 36

<212> PRT

<213> Artificial

<220>

<223> Chimeric peptide consisting of amino acid sequence 1-10 of the
GnRH hormone linked by a spacer to amino acid sequence 378-398 of
the Plasmodium falciparum circumsporozoite (CSP) protein

<220>

<221> MOD_RES

<222> (1)..(1)

<223> Pyroglutamic acid or 5-oxoproline

<220>

<221> PEPTIDE

<222> (1)..(10)

<223> Amino acid sequence 1-10 of the human GnRH hormone

<220>

<221> PEPTIDE

<222> (11)..(16)

<223> Spacer peptide

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21 <220>
22 <221> PEPTIDE
23 <222> (17) .. (36)
24 <223> Amino acid sequence 378-398 of the Malaria
25 (Plasmodium falciparum) circumsporozoite
26 (CSP) protein

28 <400> 16

29 Xaa His Trp Ser Tyr Gly Leu Arg Pro Gly Ser Ser Gly Pro Ser Leu
30 1 5 10 15

32 Asp Glu Lys Lys Ile Ala Lys Met Glu Lys Ala Ser Ser Val Phe Asn
33 20 25 30

35 Val Val Asn Ser
36 35

38 <210> 17
39 <211> 47
40 <212> PRT
41 <213> Artificial

43 <220>
44 <223> Chimeric peptide consisting of amino acid sequence 1-10 of the
45 GnRH hormone linked by a spacer to amino acid sequence 288-302 of
46 the Measles virus protein F linked by a spacer to amino acid
47 sequence 2-10 of the GnRH hormone

49 <220>
50 <221> MOD_RES
51 <222> (1) .. (1)
52 <223> Pyroglutamic acid or 5-oxoproline

54 <220>
55 <221> MOD_RES
56 <222> (47) .. (47)
57 <223> Amidated-glycine or glycinamide

59 <220>
60 <221> PEPTIDE
61 <222> (1) .. (10)
62 <223> Amino acid sequence 1-10 of the human GnRH hormone

64 <220>
65 <221> PEPTIDE
66 <222> (11) .. (18)
67 <223> Spacer peptide

<220>
<221> PEPTIDE
<222> (19)..(34)
<223> Amino acid sequence 288-302 of the Measles virus fusion protein, F

<220>
<221> PEPTIDE
<222> (35)..(38)
<223> Spacer peptide

<220>
<221> PEPTIDE
<222> (39)..(47)
<223> Amino acid sequence 2-10 of the human GnRH hormone

<400> 17

Xaa His Trp Ser Tyr Gly Leu Arg Pro Gly Ser Ser Gly Pro Ser Leu
1 5 10 15

Lys Leu Leu Ser Glu Ile Lys Gly Val Ile Val His Arg Leu Glu Gly
20 25 30

Val Glu Gly Pro Ser Leu His Trp Ser Tyr Gly Leu Arg Pro Xaa
35 40 45

'<210> 18
<211> 50
<212> PRT
<213> Artificial

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<223> Chimeric peptide consisting of amino acid sequence 1-10 of human GnRH linked by a spacer to amino acid sequence 947-967 of the Teanus toxoid precursor (Tentyoxylsin) protein linked by a spacer to amino acid sequence 2-10 of human GnRH

<220>
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<222> (1)..(1)
<223> Pyroglutamic acid or 5-oxoproline

<220>
<221> MOD_RES

<222> (50)..(50)
<223> Amidated glycine or glycinamide

<220>
<221> PEPTIDE
<222> (1)..(10)
<223> Amino acid sequence 1-10 of the human GnRH hormone

<220>
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<222> (11)..(16)
<223> Spacer peptide

<220>
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<222> (17)..(37)
<223> Amino acid sequence 947-967 of the Tetanus toxoid precursor
(Tentoxoysin)

<220>
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<222> (38)..(41)
<223> Spacer peptide

<220>
<221> PEPTIDE
<222> (42)..(50)
<223> Amino acid sequence 2-10 of the human GnRH hormone

<400> 18

Xaa His Trp Ser Tyr Gly Leu Arg Pro Gly Ser Ser Gly Pro Ser Leu
1 5 10 15

Phe Asn Asn Phe Thr Val Ser Phe Trp Leu Arg Val Pro Lys Val Ser
20 25 30

Ala Ser His Leu Glu Gly Pro Ser Leu His Trp Ser Tyr Gly Leu Arg
35 40 45

Pro Xaa
50

<210> 19
<211> 46
<212> PRT

<213> Artificial

<220>

<223> Chimeric peptide consisting of amino acid sequence 1-10 of human GnRH linked by a spacer to amino acid sequence 830-844 of Tetanus toxoid precursor (Tentoxylisin) linked by a spacer to amino acid sequence 1-10 of GnRH

<220>

<221> MOD_RES

<222> (1)..(1)

<223> Pyroglutamic acid or 5-oxoproline

<220>

<221> MOD_RES

<222> (46)..(46)

<223> Amidated glycine or glycinamide

<220>

<221> PEPTIDE

<222> (1)..(10)

<223> Amino acid sequence 1-10 of the human GnRH hormone

<220>

<221> PEPTIDE

<222> (11)..(16)

<223> Spacer peptide

<220>

<221> PEPTIDE

<222> (17)..(31)

<223> Amino acid sequence 830-844 of the Tetanus toxoid precursor (Tentoxylisin)

<220>

<221> PEPTIDE

<222> (32)..(37)

<223> Spacer peptide

<220>

<221> PEPTIDE

<222> (38)..(46)

<223> Amino acid sequence 2-10 of the human GnRH hormone

<400> 19

Xaa His Trp Ser Tyr Gly Leu Arg Pro Gly Ser Ser Gly Pro Ser Leu
1 5 10 15

Gln Tyr Ile Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu Leu Ser
20 25 30

Ser Gly Pro Ser Leu His Trp Ser Tyr Gly Leu Arg Pro Xaa
35 40 45

<210> 20
<211> 51
<212> PRT
<213> Artificial

<220>
<223> Chimeric peptide consisting of amino acid sequence 1-10 of human
GnRH linked by a spacer to amino acid sequence 378-398 of
Plasmodium falciparum circumsporozoite (CSP) protein

<220>
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<222> (1)..(1)
<223> Pyroglutamic acid or 5-oxoproline

<220>
<221> MOD_RES
<222> (51)..(51)
<223> Amidated glycine or glycinamide

<220>
<221> PEPTIDE
<222> (1)..(10)
<223> Amino acid sequence 1-10 of the human GnRH hormone

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<222> (11)..(16)
<223> Spacer peptide

<220>
<221> PEPTIDE
<222> (17)..(36)
<223> Amino acid sequence 378-398 of the Plasmodium falciparum
circumsporozoite (CSP) protein

<220>

<221> PEPTIDE
<222> (37)..(42)
<223> Spacer peptide

<220>
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<222> (43)..(51)
<223> Amino acid sequence 2-10 of the human GnRH hormone

<400> 20

Xaa His Trp Ser Tyr Gly Leu Arg Pro Gly Ser Ser Gly Pro Ser Leu
1 5 10 15

Asp Glu Lys Lys Ile Ala Lys Met Glu Lys Ala Ser Ser Val Phe Asn
20 25 30

Val Val Asn Ser Ser Ser Gly Pro Ser Leu His Trp Ser Tyr Gly Leu
35 40 45

Arg Pro Xaa
50